



## Openreach thinks outside the box

to deliver equal access to UK service providers in compliance with Ofcom's mandate

### ABOUT BT AND OPENREACH

BT is a leading communications solutions and services provider operating in 170 countries. In the UK alone, BT serves more than 20 million business and residential customers with more than 30 million exchange lines. In response to January 2006 government deregulation mandates, BT announced the creation of the Openreach and Wholesale B2B Gateways.

Providing access to network services and products on an equal basis to the whole UK telecommunications industry, Openreach enables the delivery of innovative, competitively priced services to the 60 million people living and working in the UK. Openreach allows all UK communications providers equal access to BT's own local loop network, as well as the ability to offer a full range of services without having to route through BT's main network.

BT Wholesale provides network services and solutions to practically every UK business reliant on communications, handles over 300 million calls every day and 350 million Internet connections every month, and is a user of the Openreach services.

### OPENREACH BACKGROUND

In January 2006, BT established the Openreach business to provide transparent and equal access and services to all of Britain's communications providers using BT's network. These businesses include BT Wholesale, BT Retail and third parties that use BT's network. Openreach was established after BT reached an agreement with Ofcom, a regulator for the UK telecommunications industry, following a strategic review carried out by Ofcom to ensure a healthy competitive market for consumers. Openreach's formation was one of the most significant milestones in the history of the UK's telecommunications industry.

Ofcom mandated that Openreach give all of its customers guaranteed service levels for response times and transaction volumes. Delivering on the promise of equal access was a major undertaking for BT, requiring an investment of more than £70 million to create the new business, which required engineers, delivery vans, marketing, operational support and all other typical business functions. Crucially, Openreach faced the monumental challenge of having to implement IT systems that would support its goals to deliver equal access.

### SCALABILITY AND THROUGHPUT DEMANDS OUTPACING TRADITIONAL SERVERS

To support the goal of delivering equal access, Openreach's IT strategy was to build a series of large Java-based Business-to-Business (B2B) Gateways. B2B Gateways integrate data from back-end software such as CRM (customer relationship management) and billing systems, enabling all trading partners to exchange information on a level playing field. In Openreach's case, the B2B Gateways were designed to enable all of its

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BT One-IT

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customers to test, provision, repair and bill for services. Initially, these Gateways were built on top of BT’s existing Sun server platform.

Unfortunately, due to infrastructure limitations, the initial performance of these Gateways did not measure up to Openreach’s requirements. The Gateways could not handle the high transaction volumes or respond quickly enough to meet service level requirements. The limitations were particularly apparent when the system experienced usage spikes.

“There was no easy or simple way to comfortably meet our peak transaction threshold target with our traditional Sun UNIX-based servers,” said Colin Windsor, CIO, Openreach. “Despite extensive tuning, we found ourselves with unacceptably slow response times.”

Mark O’Flaherty, B2B & Integration programme manager BT One-IT added, “Despite a significant investment in hardware, our infrastructure wasn’t sufficiently scalable, which meant we couldn’t ensure consistent service levels on a sufficiently large scale without encroaching on the data centre.”

If applications were either not available or too slow, BT could be found in breach of contract and exposed to SLA penalties and litigation risk by communication providers, which could ultimately damage BT’s reputation as an industry leader.

Clearly BT was not going to allow this to happen and immediately began to explore options.

### **AN UNPALATABLE OPTION**

The first option on the table was to expand the server estate by installing 10 large UNIX servers for each B2B Gateway. However, this would require up to 40 additional racks of data centre space, and provisions would need to be made to accommodate the additional power and cooling requirements. These sobering statistics led to the need for some creative thinking on how to meet Ofcom’s requirements without incurring unbearable costs and delays.

O’Flaherty continued, “We knew that given our current strategy and the amount of effort required, we just couldn’t keep buying box after box. Plus, the complexity of growing the estate fell under the law of diminishing returns, and we were not confident of hitting the numbers.”

### **AZUL SYSTEMS' 'COMPLIANCE APPLIANCE' TO THE RESCUE**

Following an exhaustive review, BT opted to test Azul Compute Appliances from Azul Systems. The appeal of Azul Systems' technology was that it offered to deliver the needed performance enhancements without BT having to expand its server estate or data centre capacity. For the first time, BT saw a viable way forward.

Within the first month of testing, BT's confidence started to build. "We were surprised at how quickly we were able to surpass the peak transaction loads beyond the levels possible with our current infrastructure. We hit our magic peak transaction number almost instantaneously," said O'Flaherty.

After running extensive trials, BT selected the Azul Compute Appliances having concluded that they were the best option for delivering the massive scalability required for the Gateways. The Appliances yielded significantly improved performance and increased capacity without compromising hardware redundancy and fail-over safeguards.

The business benefits speak for themselves.

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### **BUSINESS BENEFITS**

- » **600% increase in throughput** allowing BT to meet predicted business volumes
  - » **Significant reduction in hardware data, management, power and cooling costs:**
    - **Response time** – reduced highly variable response times from up to 10 seconds to consistently below 2 seconds, regardless of transaction volumes
    - **Scalability** – enabled Gateways to handle a 600 per cent increase in transaction volumes on existing server infrastructure
    - **Infrastructure** – reduced requirement from 10 Sun servers per Gateway to two
    - **Power consumption** – reduced by 59 per cent
    - **Data centre space** – reduced from 20 racks to six
    - **Total cost of ownership** – reduced by 30 per cent
  - » Ability to meet stringent service levels and deregulation requirements as mandated by Ofcom
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With Azul, we continue to achieve consistent throughput to meet our target levels with very little tuning.

—Colin Windsor, CIO Openreach

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## DELIVERING GUARANTEED QUALITY OF SERVICE

BT successfully launched the Openreach B2B Gateway in December 2006 and the Wholesale B2B Gateway in February 2007. These activities have effectively contributed to transforming the UK telecommunications industry offering unprecedented consumer choice and reinforced BT’s leadership in the UK industry. BT can confidently guarantee quality of service levels to all communications providers who use the Gateways.

“Our quality-of-service challenge reflects an increasingly important industry trend – scalability and throughput demands of mission-critical compute infrastructures are outpacing the capabilities of traditional servers,” said Openreach’s Windsor. “With Azul Compute Appliances, companies facing capacity challenges can achieve the scalability they need while controlling IT costs through greater manageability, flexibility, and reduced requirements for real estate and power.

With Azul, we continue to achieve consistent throughput to meet our target levels with very little tuning,” stated Windsor.

## ABOUT AZUL COMPUTE APPLIANCES

Azul Compute Appliances are specialised network devices optimised for the execution of Java applications. They let enterprise applications perform significantly more work by sustaining dramatically larger active thread pools and huge data sets in a single instance, and eliminate pauses associated with the memory garbage collection process. These capabilities typically yield a 3x increase in the productivity for modern Java applications. Traditional servers transparently offload Java processing with no code changes required. Azul Compute Appliances are shared infrastructures that can be used by heterogeneous servers with different operating systems and different versions of Java all at the same time. For more information on Azul Compute Appliances, please visit [www.azulsystems.com](http://www.azulsystems.com).



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